



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-542



### **LPD 17 San Antonio Class Amphibious Transport Dock (LPD 17)**

As of FY 2017 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

## Table of Contents

Common Acronyms and Abbreviations for MDAP Programs .....	3
Program Information .....	5
Responsible Office .....	5
References .....	5
Mission and Description .....	6
Executive Summary .....	7
Threshold Breaches .....	8
Schedule .....	9
Performance .....	12
Track to Budget .....	14
Cost and Funding .....	15
Low Rate Initial Production .....	22
Foreign Military Sales .....	23
Nuclear Costs .....	23
Unit Cost .....	24
Cost Variance .....	27
Contracts .....	30
Deliveries and Expenditures .....	33
Operating and Support Cost .....	34

## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

**Program Name**

LPD 17 San Antonio Class Amphibious Transport Dock (LPD 17)

**DoD Component**

Navy

## Responsible Office

CAPT Darren Plath  
LPD 17 Amphibious Transport Dock  
Ship Program Office (PMS317)  
PEO Ships  
Washington, DC 20376-2401

**Phone:** 202-781-0159  
**Fax:**  
**DSN Phone:** 326-0159  
**DSN Fax:**  
**Date Assigned:** August 27, 2012

[darren.plath@navy.mil](mailto:darren.plath@navy.mil)

## References

**SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 17, 1996

**Approved APB**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated March 25, 2015

## **Mission and Description**

The LPD 17 San Antonio Class Amphibious Transport Dock Ship (LPD 17) is the functional replacement for the LPD 4, LSD 36, LKA 113, and LST 1179 Classes of Amphibious Ships for embarking, transporting and landing elements of a Marine landing force in an assault by helicopters, landing craft, amphibious vehicles, and by a combination of these methods to conduct the primary amphibious warfare mission.

## Executive Summary

Stability in ship construction and sustained operational availability above 90% have characterized the LPD 17 program over the past year. Nine LPD 17 class ships are operating as Fleet assets; and the two ships in construction are projected to deliver below the contract ceiling price.

USS SOMERSET (LPD 25) was officially transferred to the in-service program office in July 2015.

As of December 2015, LPD 26 and LPD 27 were 94% and 69% complete, respectively. The FY 2017 PB request includes cost to complete funding to cover cost growth associated with rate and Estimate at Completion increases on LPD 27.

The FY 2015 Consolidated Appropriations Act provided \$1B for the twelfth LPD 17 class ship (LPD 28); and the balance of full funding was appropriated in FY 2016. An Undefined Contract Action for Long Lead Time Material on LPD 28 was awarded in December 2015; and the Request for Proposal for Detail Design and Construction of the ship was released, on a sole-source basis, to Huntington Ingalls Industries on January 6, 2016.

There are no significant software-related issues with this program at this time.

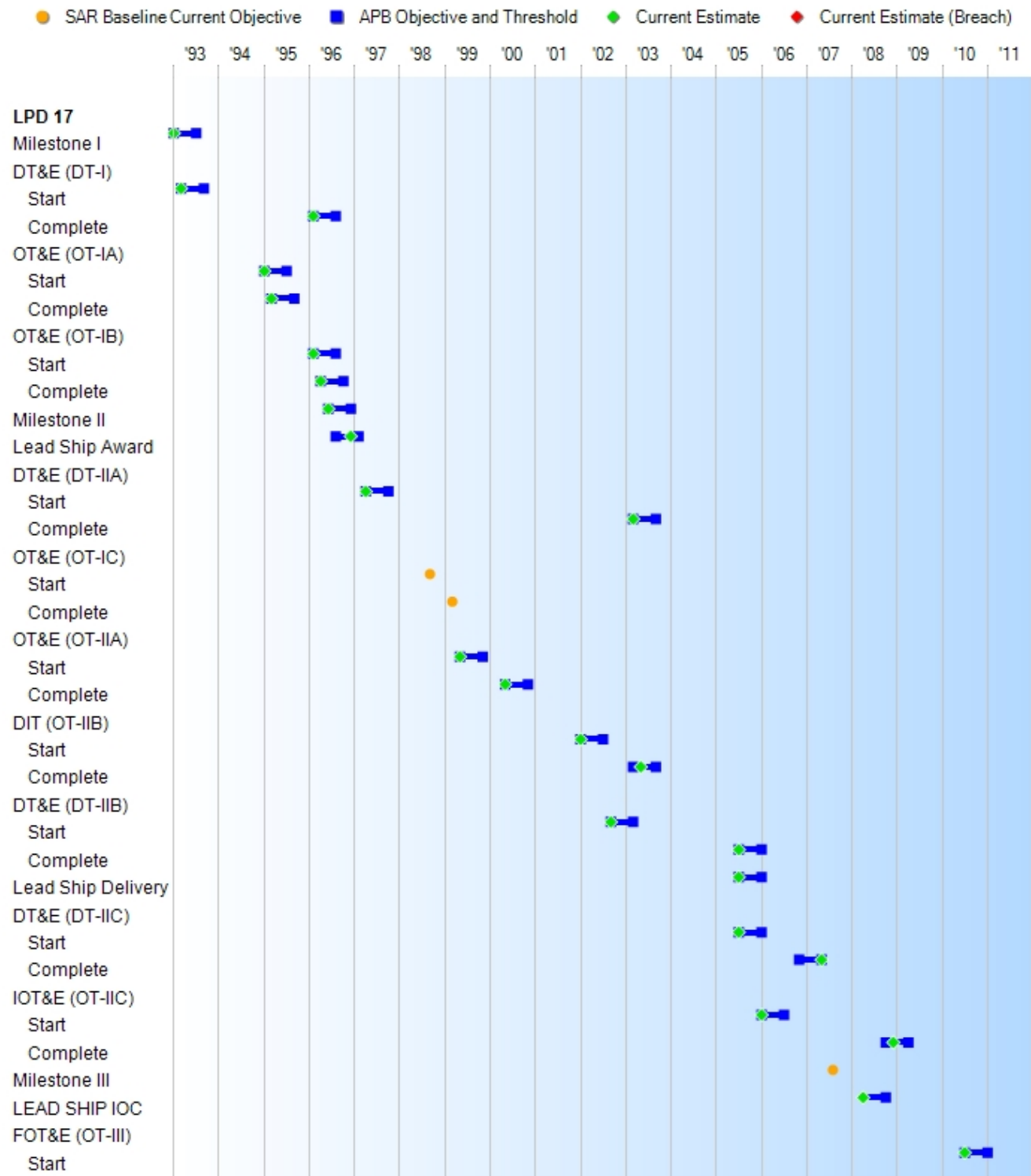
Threshold Breaches

APB Breaches		
Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None



# Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
Milestone I	Jan 1993	Jan 1993	Jul 1993	Jan 1993
DT&E (DT-I)				
Start	Mar 1993	Mar 1993	Sep 1993	Mar 1993
Complete	Feb 1996	Feb 1996	Aug 1996	Feb 1996
OT&E (OT-IA)				
Start	Jan 1995	Jan 1995	Jul 1995	Jan 1995
Complete	Mar 1995	Mar 1995	Sep 1995	Mar 1995
OT&E (OT-IB)				
Start	Feb 1996	Feb 1996	Aug 1996	Feb 1996
Complete	Apr 1996	Apr 1996	Oct 1996	Apr 1996
Milestone II	Jun 1996	Jun 1996	Dec 1996	Jun 1996
Lead Ship Award	Aug 1996	Aug 1996	Feb 1997	Dec 1996
DT&E (DT-IIA)				
Start	Sep 1996	Apr 1997	Oct 1997	Apr 1997
Complete	Aug 1998	Mar 2003	Sep 2003	Mar 2003
OT&E (OT-IC)				
Start	Sep 1998	N/A	N/A	N/A
Complete	Mar 1999	N/A	N/A	N/A
OT&E (OT-IIA)				
Start	Jun 2003	May 1999	Nov 1999	May 1999
Complete	Sep 2003	May 2000	Nov 2000	May 2000
DIT (OT-IIB)				
Start	N/A	Jan 2002	Jul 2002	Jan 2002
Complete	N/A	Mar 2003	Sep 2003	May 2003
DT&E (DT-IIB)				
Start	Sep 1998	Sep 2002	Mar 2003	Sep 2002
Complete	Jun 2002	Jul 2005	Jan 2006	Jul 2005
Lead Ship Delivery	Jun 2002	Jul 2005	Jan 2006	Jul 2005
DT&E (DT-IIC)				
Start	Jul 2002	Jul 2005	Jan 2006	Jul 2005
Complete	Jan 2004	Nov 2006	May 2007	May 2007
IOT&E (OT-IIC)				
Start	N/A	Jan 2006	Jul 2006	Jan 2006
Complete	N/A	Oct 2008	Apr 2009	Dec 2008
Milestone III	Aug 2007	N/A	N/A	N/A

LEAD SHIP IOC	Jan 2004	Apr 2008	Oct 2008	Apr 2008
FOT&E (OT-III)				
Start	Jan 2011	Jul 2010	Jan 2011	Jul 2010

**Change Explanations**

None

**Acronyms and Abbreviations**

DIT - Design Integration Testing

DT - Developmental Test

DT&E - Developmental Test and Evaluation

FOT&E - Follow-on Operational Test and Evaluation

IOT&E - Initial Operational Test and Evaluation

OT - Operational Test

OT&E - Operational Test and Evaluation

## Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Mobility				
Sustained Speed (Kts)				
23	23	21.5	24	24
Endurance ((NM)(K) @ Kts)				
10/22	10/22	9.5/20	10.6/20	10.6/20
Amphibious Warfare Embarkation (Net)				
Troops				
750	750	650	720	720
Vehicles (Sq Ft)(k)				
25	25	22	22	22
Cargo (Cubic Feet)(k)				
25	25	22	34	34
Bulk Fuel (Gals)(k)				
325	325	250	307	307
LCAC				
2	2	1(+1)	2	2
VTOL Land/Launch Spots (CH-46 or CH-53E or MV-22)				
4/3/2	4/3/2	4/2/2	4/2/2	4/2/2
VTOL Maint/Storage (CH-46 or CH-53E or MV-22)				
3/1/1	3/1/1	2/1/1	2/1/1	2/1/1
Ship To Shore Capability (LCAC)				
Sustained Operations (reload 6 LCACs)(mins)				
220	220	285	274	274
Operational Availability (Ao)				
.90	.90	.80	.92	.91

(Ch-1)

(Ch-1)

### Requirements Reference

Operational Requirements Document (ORD) Revision 3 dated April 8, 1996

**Change Explanations**

(Ch-1) Current estimate for Operational Availability changed from .90 to .91 to reflect the calculation for the LPD 17 class as of December 31, 2015.

**Notes**

Demonstrated Performance for Sustained Speed and Vehicles (Sq Ft) reflect performance during LPD 17 BT.

Demonstrated Performance for Troops, Cargo (Cubic Feet), LCAC, and VTOL Land/Launch Spots reflect measurements taken during LPD 17 Sail Away Trials.

Demonstrated Performance for Bulk Fuel, VTOL Maint/Storage, and Sustained Operations reflect performance during LPD 17 Class IOT&E events.

Demonstrated Performance for Ao reflects performance cited in the LPD 17 Class OPEVAL report dated January 2010.

**Acronyms and Abbreviations**

Ao - Operational Availability

BT - Builder's Trials

Gals - gallons

IOT&E - Initial Operational Test and Evaluation

K/k - Thousands

Kts - Knots

LCAC - Landing Craft Air Cushion

mins - minutes

NM - Nautical Miles

OPEVAL - Operational Evaluation

Sq Ft - square feet

VTOL - Vertical Take-Off and Landing

## Track to Budget

RDT&E			
Appn	BA	PE	
Navy	1319 05	0604311N	
	Project	Name	
	2283	LPD 17 Class Systems Integration	(Shared) (Sunk)
Procurement			
Appn	BA	PE	
Navy	1611 01	0204411N	
	Line Item	Name	
	0946	LPD 17 Class Support Equipment	(Shared)
	0981	Items Less Than \$5M	(Shared) (Sunk)
Navy	1611 03	0204411N	
	Line Item	Name	
	3036	LPD-17	
Navy	1611 05	0204411N	
	Line Item	Name	
	5110	Outfitting	(Shared)
	5300	Completion of Prior Year Shipbuilding Programs	(Shared)
Notes			

Funding in BA 01 / Line Item 0981 and BA 01 / Line Item 0946 is Other Procurement, Navy funding for non-acquisition related efforts and is not included in the APB objective.

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 1996 \$M			BY 1996 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	78.7	111.3	122.4	116.1	77.8	114.0	120.1
Procurement	8939.4	15281.2	16809.3	15146.1	10684.0	20817.5	20591.4
Flyaway	--	--	--	15146.1	--	--	20591.4
Recurring	--	--	--	15146.1	--	--	20591.4
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	9018.1	15392.5	N/A	15262.2	10761.8	20931.5	20711.5

#### Current APB Cost Estimate Reference

Program Office Estimate dated February 13, 2015

#### Confidence Level

Confidence Level of cost estimate for current APB: 95%

The confidence level is supported by the maturity level of the program which is 75% delivered. The tenth and eleventh ships are in construction under fixed price contracts; the last ship of the class is incrementally funded in FY 2015/2016.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	0	0	0
Procurement	12	12	12
Total	12	12	12

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	120.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	120.1
Procurement	19791.3	655.2	114.7	30.2	0.0	0.0	0.0	0.0	20591.4
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	19911.4	655.2	114.7	30.2	0.0	0.0	0.0	0.0	20711.5
PB 2016 Total	19910.2	668.0	110.6	30.4	0.0	0.0	0.0	0.0	20719.2
Delta	1.2	-12.8	4.1	-0.2	0.0	0.0	0.0	0.0	-7.7

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	11	1	0	0	0	0	0	0	12
PB 2017 Total	0	11	1	0	0	0	0	0	0	12
PB 2016 Total	0	11	1	0	0	0	0	0	0	12
Delta	0	0	0	0	0	0	0	0	0	0



## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1990	--	--	--	--	--	--	0.5
1991	--	--	--	--	--	--	4.9
1992	--	--	--	--	--	--	1.2
1993	--	--	--	--	--	--	10.3
1994	--	--	--	--	--	--	28.0
1995	--	--	--	--	--	--	10.8
1996	--	--	--	--	--	--	9.2
1997	--	--	--	--	--	--	4.3
1998	--	--	--	--	--	--	12.9
1999	--	--	--	--	--	--	1.3
2000	--	--	--	--	--	--	2.3
2001	--	--	--	--	--	--	0.2
2002	--	--	--	--	--	--	0.5
2003	--	--	--	--	--	--	5.6
2004	--	--	--	--	--	--	3.1
2005	--	--	--	--	--	--	7.4
2006	--	--	--	--	--	--	8.5
2007	--	--	--	--	--	--	4.8
2008	--	--	--	--	--	--	0.3
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	4.0
Subtotal	--	--	--	--	--	--	120.1

Annual Funding 1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 1996 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1990	--	--	--	--	--	--	0.6
1991	--	--	--	--	--	--	5.4
1992	--	--	--	--	--	--	1.3
1993	--	--	--	--	--	--	10.8
1994	--	--	--	--	--	--	28.7
1995	--	--	--	--	--	--	10.9
1996	--	--	--	--	--	--	9.1
1997	--	--	--	--	--	--	4.2
1998	--	--	--	--	--	--	12.5
1999	--	--	--	--	--	--	1.2
2000	--	--	--	--	--	--	2.2
2001	--	--	--	--	--	--	0.2
2002	--	--	--	--	--	--	0.5
2003	--	--	--	--	--	--	5.1
2004	--	--	--	--	--	--	2.7
2005	--	--	--	--	--	--	6.4
2006	--	--	--	--	--	--	7.1
2007	--	--	--	--	--	--	3.9
2008	--	--	--	--	--	--	0.2
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	3.1
Subtotal	--	--	--	--	--	--	116.1

Annual Funding 1611   Procurement   Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	1	1051.9	--	--	1051.9	--	1051.9
1997	--	--	--	--	--	--	--
1998	--	96.0	--	--	96.0	--	96.0
1999	1	653.2	--	--	653.2	--	653.2
2000	2	1557.6	--	--	1557.6	--	1557.6
2001	--	592.3	--	--	592.3	--	592.3
2002	--	418.5	--	--	418.5	--	418.5
2003	1	1240.8	--	--	1240.8	--	1240.8
2004	1	1654.8	--	--	1654.8	--	1654.8
2005	1	1314.2	--	--	1314.2	--	1314.2
2006	1	3303.0	--	--	3303.0	--	3303.0
2007	--	468.7	--	--	468.7	--	468.7
2008	1	1601.0	--	--	1601.0	--	1601.0
2009	1	1047.2	--	--	1047.2	--	1047.2
2010	--	1234.1	--	--	1234.1	--	1234.1
2011	--	61.9	--	--	61.9	--	61.9
2012	1	1969.7	--	--	1969.7	--	1969.7
2013	--	391.4	--	--	391.4	--	391.4
2014	--	57.9	--	--	57.9	--	57.9
2015	--	1077.1	--	--	1077.1	--	1077.1
2016	1	655.2	--	--	655.2	--	655.2
2017	--	114.7	--	--	114.7	--	114.7
2018	--	30.2	--	--	30.2	--	30.2
Subtotal	12	20591.4	--	--	20591.4	--	20591.4

Annual Funding 1611   Procurement   Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 1996 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	1	1024.9	--	--	1024.9	--	1024.9
1997	--	--	--	--	--	--	--
1998	--	90.1	--	--	90.1	--	90.1
1999	1	603.5	--	--	603.5	--	603.5
2000	2	1403.4	--	--	1403.4	--	1403.4
2001	--	515.9	--	--	515.9	--	515.9
2002	--	362.5	--	--	362.5	--	362.5
2003	1	1015.9	--	--	1015.9	--	1015.9
2004	1	1307.4	--	--	1307.4	--	1307.4
2005	1	994.2	--	--	994.2	--	994.2
2006	1	2413.7	--	--	2413.7	--	2413.7
2007	--	327.5	--	--	327.5	--	327.5
2008	1	1081.7	--	--	1081.7	--	1081.7
2009	1	686.4	--	--	686.4	--	686.4
2010	--	781.5	--	--	781.5	--	781.5
2011	--	38.0	--	--	38.0	--	38.0
2012	1	1181.2	--	--	1181.2	--	1181.2
2013	--	230.1	--	--	230.1	--	230.1
2014	--	33.4	--	--	33.4	--	33.4
2015	--	611.0	--	--	611.0	--	611.0
2016	1	364.9	--	--	364.9	--	364.9
2017	--	62.7	--	--	62.7	--	62.7
2018	--	16.2	--	--	16.2	--	16.2
Subtotal	12	15146.1	--	--	15146.1	--	15146.1

Cost Quantity Information 1611   Procurement   Shipbuilding and Conversion, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 1996 \$M
1996	1	1812.3
1997	--	--
1998	--	--
1999	1	1160.9
2000	2	2343.3
2001	--	--
2002	--	--
2003	1	1318.7
2004	1	1250.8
2005	1	1135.1
2006	1	1219.4
2007	--	--
2008	1	1302.5
2009	1	1299.0
2010	--	--
2011	--	--
2012	1	1287.8
2013	--	--
2014	--	--
2015	--	--
2016	1	1016.3
2017	--	--
2018	--	--
Subtotal	12	15146.1

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	6/17/1996	6/17/1996
Approved Quantity	12	12
Reference	Milestone II ADM	Milestone II ADM
Start Year	1996	1996
End Year	2016	2016

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the ADM dated June 17, 1996 approving 12 LRIP ships which is standard for shipbuilding programs.

**Foreign Military Sales**

None

**Nuclear Costs**

None

## Unit Cost

### Unit Cost Report

Item	BY 1996 \$M	BY 1996 \$M	% Change
	Current UCR Baseline (Mar 2015 APB)	Current Estimate (Dec 2015 SAR)	

#### Program Acquisition Unit Cost

Cost	15392.5	15262.2	
Quantity	12	12	
Unit Cost	1282.708	1271.850	-0.85

#### Average Procurement Unit Cost

Cost	15281.2	15146.1	
Quantity	12	12	
Unit Cost	1273.433	1262.175	-0.88

Item	BY 1996 \$M	BY 1996 \$M	% Change
	Revised Original UCR Baseline (Oct 2005 APB)	Current Estimate (Dec 2015 SAR)	

#### Program Acquisition Unit Cost

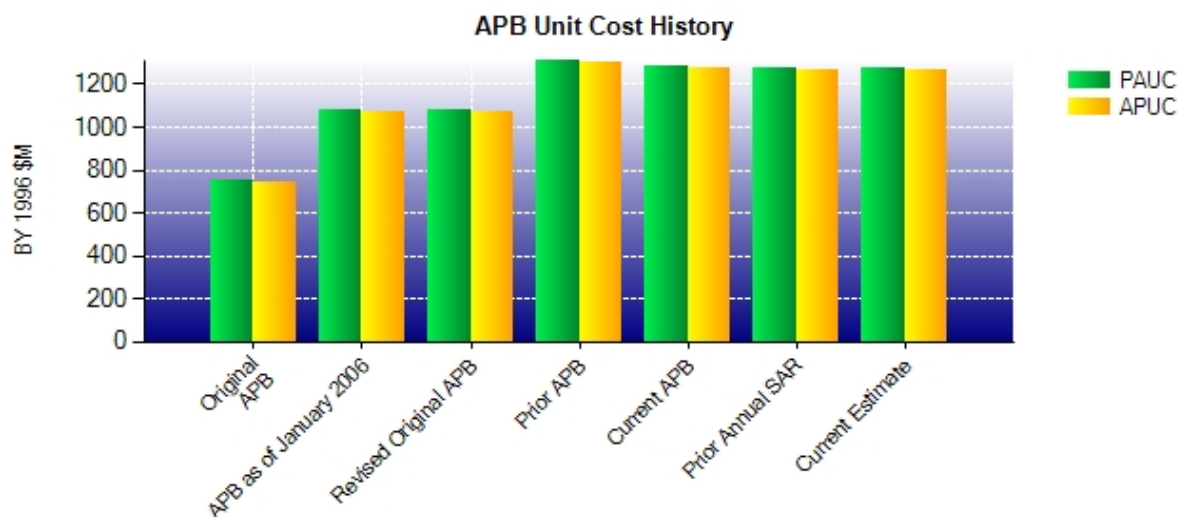
Cost	12955.2	15262.2	
Quantity	12	12	
Unit Cost	1079.600	1271.850	+17.81

#### Average Procurement Unit Cost

Cost	12842.4	15146.1	
Quantity	12	12	
Unit Cost	1070.200	1262.175	+17.94



## Unit Cost History



Item	Date	BY 1996 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jun 1996	751.508	744.950	896.817	890.333
APB as of January 2006	Oct 2005	1079.600	1070.200	1283.233	1273.642
Revised Original APB	Oct 2005	1079.600	1070.200	1283.233	1273.642
Prior APB	Sep 2011	1314.400	1304.282	1711.636	1701.273
Current APB	Mar 2015	1282.708	1273.433	1744.292	1734.792
Prior Annual SAR	Dec 2014	1272.692	1263.017	1726.600	1716.592
Current Estimate	Dec 2015	1271.850	1262.175	1725.958	1715.950

## SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
896.817	85.308	-68.184	84.192	0.000	538.108	189.842	-0.125	829.141	1725.958

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
890.333	85.292	-68.183	83.683	0.000	535.108	189.842	-0.125	825.617	1715.950

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	Jan 1993	Jan 1993	N/A	Jan 1993
Milestone II	Jul 1995	Jun 1996	N/A	Jun 1996
Milestone III	Oct 2003	Aug 2007	N/A	N/A
IOC	Oct 2003	Jan 2004	N/A	Apr 2008
Total Cost (TY \$M)	59.1	10761.8	N/A	20711.5
Total Quantity	N/A	12	N/A	12
PAUC	N/A	896.817	N/A	1725.958

## Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	77.8	10684.0	--	10761.8
Previous Changes				
Economic	+0.2	+1013.8	--	+1014.0
Quantity	--	-818.2	--	-818.2
Schedule	+6.1	+1004.2	--	+1010.3
Engineering	--	--	--	--
Estimating	+36.0	+6438.7	--	+6474.7
Other	--	+2278.1	--	+2278.1
Support	--	-1.5	--	-1.5
Subtotal	+42.3	+9915.1	--	+9957.4
Current Changes				
Economic	--	+9.7	--	+9.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	-17.4	--	-17.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	-7.7	--	-7.7
Total Changes	+42.3	+9907.4	--	+9949.7
CE - Cost Variance	120.1	20591.4	--	20711.5
CE - Cost & Funding	120.1	20591.4	--	20711.5

Summary BY 1996 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	78.7	8939.4	--	9018.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	-946.2	--	-946.2
Schedule	+4.8	+461.6	--	+466.4
Engineering	--	--	--	--
Estimating	+32.6	+5049.7	--	+5082.3
Other	--	+1651.7	--	+1651.7
Support	--	--	--	--
Subtotal	+37.4	+6216.8	--	+6254.2
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	-10.1	--	-10.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	-10.1	--	-10.1
Total Changes	+37.4	+6206.7	--	+6244.1
CE - Cost Variance	116.1	15146.1	--	15262.2
CE - Cost & Funding	116.1	15146.1	--	15262.2

Previous Estimate: December 2014

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+9.7
Miscellaneous adjustments to post delivery and outfitting. (Estimating)	-4.6	-7.9
Adjustment for current and prior escalation. (Estimating)	-5.5	-9.5
Procurement Subtotal	-10.1	-7.7

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** LPD 26  
**Contractor:** Huntington Ingalls Industries  
**Contractor Location:** 1000 Access Road  
Pascagoula, MS 39567-0149  
**Contract Number:** N00024-06-C-2222/26  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** April 01, 2011  
**Definitization Date:** April 01, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1487.2	1690.0	1	1519.4	1725.9	1	1593.9	1577.0

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the incorporation of engineering change proposals and negotiation of contract price adjustments to cover the Navy's shares of corporate office and general insurance expenses following completion of the spin-off of Northrop Grumman's shipbuilding division and deferred depreciation expenses for recovery of insurance proceeds associated with Hurricane Katrina damages.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	-116.9	+2.0
Previous Cumulative Variances	-96.6	+12.7
Net Change	-20.3	-10.7

### Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to the requirement for additional supervision and rework driven by the level of inexperienced personnel in some crafts, increased work scope driven by the implementation of production improvements, and excessive weather conditions, which drove schedule delays in the earlier stages of construction.

The unfavorable net change in the schedule variance is due to coordination challenges, both internal and external, driven by inconsistent material availability and facility capacity.

**Notes**

LPD 26 construction is being performed at Huntington Ingalls Industries, Pascagoula Operations.

The program manager's estimated price at completion includes the estimate of the government liability for a contract clause associated with the Avondale restructuring/closure and the implementation of changes to safety regulations and federal law associated with the Occupational Safety and Health Administration and the Pension Protection Act. The government liability for deferred depreciation from Hurricane Katrina was negotiated lower than the original estimate; and the current estimate of the government liability for the Avondale restructuring/closure is also lower than the initial estimate.

Cost growth can be attributed to overhead rate increases, unforeseen craft inefficiencies, engineering overruns, and material escalation.

This contract is more than 90% complete; therefore, this is the final report for this contract.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** LPD 27  
**Contractor:** Huntington Ingalls Industries  
**Contractor Location:** 1000 Access Road  
Pascagoula, MS 39567-0149  
**Contract Number:** N00024-06-C-2222/27  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** July 27, 2012  
**Definitization Date:** July 27, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1507.1	1692.2	1	1508.9	1694.2	1	1582.5	1549.0

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the incorporation of engineering change proposals and negotiation of a contract price adjustment to cover the Navy's share of deferred depreciation expenses for recovery of insurance proceeds associated with Hurricane Katrina damages.

Contract Variance			
Item	Cost Variance	Schedule Variance	
Cumulative Variances To Date (12/31/2015)	-108.3	-13.2	
Previous Cumulative Variances	-84.9	+5.8	
Net Change	-23.4	-19.0	

**Cost and Schedule Variance Explanations**

The unfavorable net change in the cost variance is due to the assignment of additional supervision to overcome training issues driven by new or inexperienced employees hired to address increased workload capacity and the execution of work in areas subject to inclement weather.

The unfavorable net change in the schedule variance is due to the unavailability of cable for scheduled hook-up/installation, which was partially driven by overly aggressive plans in select crafts.

**Notes**

LPD 27 construction is being performed at Huntington Ingalls Industries, Pascagoula Operations.

The program manager's estimated price at completion includes the estimate of the government liability for a contract clause associated with the Avondale restructuring/closure. The government liability for deferred depreciation from Hurricane Katrina was negotiated lower than the original estimate; and the current estimate of the government liability for the Avondale restructuring/closure is also lower than the initial estimate.

Cost growth can be attributed to early challenges in facility capacity, including weathered and congested work areas, and the use of inexperienced labor.



## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	9	9	12	75.00%
Total Program Quantity Delivered	9	9	12	75.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	20711.5	Years Appropriated	27
Expended to Date	17576.0	Percent Years Appropriated	93.10%
Percent Expended	84.86%	Appropriated to Date	20566.6
Total Funding Years	29	Percent Appropriated	99.30%

The above data is current as of January 15, 2016.

## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	February 04, 2016
<b>Source of Estimate:</b>	POE
<b>Quantity to Sustain:</b>	12
<b>Unit of Measure:</b>	Ship
<b>Service Life per Unit:</b>	40.00 Years
<b>Fiscal Years in Service:</b>	FY 2005 - FY 2061

The cost element data for the LPD 17 class was pulled from the Naval Visibility and Management of Operating & Support Costs (VAMOSC) database. The average annual costs per LPD 17 class ship are based on actual VAMOSC data from 2006 through 2015.

Average crew size for an LPD 17 class ship is 382.

The increase in the average crew size was driven by additional manning requirements related to system upgrades and the results of Navy Manpower Analysis Center studies which identified, and subsequently corrected, other manning deficiencies.

### Sustainment Strategy

Life cycle engineering and support contracts with the shipbuilder and the Integrated Shipboard Electronics contractor, along with In Service Engineering Agent support contracts, are in place to support sustainment efforts.

Responsibilities have been divided to leverage strengths; the shipbuilder maintains the planning yard while the program office manages life-cycle maintenance, modernization, and logistics. Phased maintenance and dry dock availabilities are planned on a standard cycle; and continuous maintenance availabilities are conducted in between.

### Antecedent Information

The LPD 4 class is one of the four amphibious ship classes being functionally replaced by the LPD 17 class. The cost element data for the LPD 4 class was pulled from the Naval VAMOSC database for all available years of data; the average annual costs per LPD 4 class ship were based on all available years of data. The current estimate includes 12 ships and a 40-year life cycle to mirror the LPD 17 class profile and expected service life. The estimate also incorporated actual LPD 4 commissioning and decommissioning profiles. The average annual costs per LPD 4 class ship were calculated in BY 1996 dollars for each cost element.

The cost element estimates for the LPD 4 class were not revised from last year's SAR submission as all, but one, LPD 4 class ships were decommissioned prior to 2013. USS DENVER was decommissioned in August 2014.

Average crew size for an LPD 4 class ship was 364.

Annual O&S Costs BY1996 \$M		
Cost Element	LPD 17 Average Annual Cost Per Ship	LPD 4 (Antecedent) Average Annual Cost Per Ship
Unit-Level Manpower	16.100	12.300
Unit Operations	4.800	3.900
Maintenance	8.700	8.600
Sustaining Support	1.200	0.900
Continuing System Improvements	1.700	2.400
Indirect Support	10.300	8.300
Other	0.000	0.000
Total	42.800	36.400

Item	Total O&S Cost \$M		
	LPD 17		LPD 4 (Antecedent)
	Current Development APB Objective/Threshold	Current Estimate	
Base Year	N/A	N/A	20544.0
Then Year	N/A	N/A	48161.0

#### Equation to Translate Annual Cost to Total Cost

The total O&S cost estimates for both the LPD 17 class and LPD 4 class are based on 12 ships over the same 40-year life cycle timeframe. The estimates were calculated using the following formula.

(Total Average Annual Cost per Hull x 12 hulls x 40 years)

LPD 17: \$42.8M x 12 x 40 = \$20,544M

LPD 4: \$36.4M x 12 x 40 = \$17,472M

O&S Cost Variance		
Category	BY 1996 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	17820.0	
Programmatic/Planning Factors	1712.0	Quantity profile increase from 11 to 12 ships.
Cost Estimating Methodology	0.0	
Cost Data Update	704.0	Additional years of data incorporated in determination of estimate.
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	308.0	Technological advancements drove cost on systems upgrades.
Other	0.0	

Total Changes	2724.0
Current Estimate	20544.0

**Disposal Estimate Details**

**Date of Estimate:** February 04, 2016  
**Source of Estimate:** POE  
**Disposal/Demilitarization Total Cost (BY 1996 \$M):** Total costs for disposal of all Ship are 61.2

The disposal cost estimate per ship is unchanged. The increase to the total disposal cost is due to the inclusion of the 12th LPD 17 class ship.